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AERIAL PHOTOGRAPHIC ANALYSIS
ALTGELD GARDENS

Chicago, Illinois

by

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NOTICE

This document has undergone a technical and quality control/assurance review and approval by personnel of the EPA/ORD Characterization Research Division at Las Vegas (CRD-LV).

ABSTRACT

This report presents findings of an analysis of historical aerial photography spanning the period 1938 to 1976. The analysis was performed for the study area known as the Pullman Sewage Farm and the community of Altgeld Gardens in Chicago, Illinois. It consists of approximately 400 acres bordered on the north by 130th Street, on the east by the Calumet Expressway, on the south by the Little Calumet River, and on the west by Indiana Avenue. The collateral information supplied by Region 5 reports that the Pullman Sewage Farm facility had been used as a site for the deposition of liquid wastes from 1881 to 1907. This analysis was requested by Region 5 to document the possible disposal of sewage sludge and landfilling operations that may have taken place before housing was built.

Findings from the analysis indicate that the results of filling activity were observed in 1959 in the northeast quadrant of the Pullman site and later filling was observed in progress in 1967 during the construction of Housing Development 4. The material used for filling could not be identified; it appeared to be light-toned, but it could not be determined what the nature of the material was or if any wastes were incorporated into this material. No evidence of the effluent ditch, referred to in the collateral information, was identified in the period of analysis.

The U.S. Environmental Protection Agency's Characterization Research Division's Monitoring Sciences Branch in Las Vegas, Nevada, prepared this report for the Agency's Hazardous Waste Management Division in Region 5 in Chicago, Illinois, and the Office of Emergency and Remedial Response in Washington, D.C.

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Figure 2. Local study area location map, Lake Calumet, Illinois. Scale 1:24,000.

INTRODUCTION

This report presents findings of an analysis of historical aerial photography spanning the period 1938 to 1976. The analysis was performed for the study area known as the Pullman Sewage Farm and the community of Altgeld Gardens in Chicago, Illinois. The study area consists of approximately 400 acres bordered on the north by 130th Street, on the east by the Calumet Expressway, on the south by the Little Calumet River, and on the west by Indiana Avenue. This analysis was requested by Region 5 to document the possible disposal of sewage sludge and landfilling operations that may have taken place before housing was built.

The collateral information supplied by Region 5 reports that the Pullman facility had been used as a site for the deposition of liquid wastes from 1881 to 1907. The following is a summary of the Pullman site background information supplied by EPA Region 5: The Pullman Sewage Farm was actively used as a disposal area for municipal waste for a span of sixteen years, from 1881 to 1907. The sludge consisted of municipal sewage and industrial waste associated with a railcar factory. It was transported through subterranean pipes from the town of Pullman in the north to a hydrant located on the farm, from which it was allowed to flow over the soil. Buried in the soil were three- to four-inch farm tiles which provided underdrainage for the filtration process. The untreated effluent flowed to ditches which then carried it to the Little Calumet River. In addition to being used to filter the sewage, the soil was also used by the Pullman Land Association to grow cash crops. Accounts published in 1893 documented eye-witness reports of the discharging of "crude sewage" into the Lake even prior to 1887. "The sewage was being run in a large open ditch...from near the farm to the lake [Calumet]". Reportedly this procedure was done to protect the cash crops being grown on the Pullman Sewage Farm.

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METHODOLOGY

Stereoscopic pairs of historical aerial photographs were used to perform the analysis. Stereo viewing enhances the interpretation because it allows the analyst to observe the vertical as well as horizontal spatial relationships of natural and cultural features. Stereoscopy is also an aid in distinguishing between various shapes, tones, textures, and colors that can be found within the study area.

Evidence of waste disposal is a prime consideration when conducting a hazardous waste site analysis. Leachate or seepage resulting from burial and dumping of hazardous materials might threaten existing surface or ground-water resources. Pools of unexplained liquid are routinely noted because they can indicate seepage from buried wastes and may enter drainage channels that allow contaminants to move off the site. An excellent indicator of how well hazardous materials are being handled at a site is the presence or absence of spills, spill stains, and vegetation damage. Trees and other forms of vegetation that exhibit a marked color difference from surrounding members of the same species are labeled "stressed," "damaged," or "dead" based upon the degree of noticeable variation. Vegetation is so labeled only after consideration of the season in which the photography was acquired.

Drainage analysis identifies the direction a spill or surface runoff would follow. Direction of drainage is determined from analysis of the photographs and from U.S. Geological Survey topographic maps. Whenever they are available, 7.5-minute quadrangle maps (scale 1:24,000) are used to show site location and to provide geographic and topographic information. Site boundaries or areas used in this analysis were determined from observations made from aerial photographs in conjunction with collateral data supplied by Region 5 and do not necessarily denote legal property lines or ownership.

Results of the analysis are shown on annotated overlays attached to the photos. The following table provides documentation of the photographs used in this report:

TABLE 1. DOCUMENTATION OF AERIAL PHOTOGRAPHY

Site name, location, geographic coordinates	Figures	Date of acquisition	Original scale	Film type*	Photo source†	Photo I.D.	Frame Number
Altgeld Gardens, Chicago, Illinois	3	11-14-38	1:19,525	B&W	NARA	BWO	31
	4	03-29-52	1:23,590	B&W	USGS	SA	60
	5	09-03-59	1:23,700	B&W	USGS	VZW	80
	6	08-28-67	1:24,447	B&W	USGS	VBTY	138
41°39′18"N 087°36′12"W	7	04-23-73	1:29,960	B&W	USGS	VDCP	80

*Film type identification:
B&W: Black-and-white

†Photo source identification:

NARA: National Archives and Records Services, Washington, DC

USGS: U.S. Department of Interior, U.S. Geological Survey, Washington, DC

PHOTO ANALYSIS

NOVEMBER 14, 1938 (FIGURE 3)

Collateral information indicates that sewage disposal had ceased at the Pullman Sewage Farm in 1907. At this time, in the northwest quadrant of the Pullman Sewage Farm area, the ground appears to be undergoing railway demolition and road construction. At a bend of the Little Calumet River (which lies northwest of the study area) an outfall and dark plume are noted, but the source of the discharge is unknown. At the center of the Pullman Sewage Farm area there is a square lot with a building (Building 1); this lot is a location of a school in 1996. In the northeast quadrant of the Pullman Sewage Farm area the land is cleared and appears to be either turf or under cultivation. In the southeast quadrant of the study area there is a small lot with buildings which appears to be a farmstead (Annotation A). In the southwest quadrant of the Pullman Sewage Farm area a housing development (Housing Development 1) is extant and is comprised of three sections, each section contains approximately twenty structures. No evidence of waste disposal activity is noted.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- FENCE
- STUDY AREA

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY

SITE FEATURES

- DIKE
- STANDING LIQUID
- SL — STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM — MOUNDED MATERIAL (SMALL)
- CR — CRATES/BOXES
- DR — DRUMS
- HT — HORIZONTAL TANK
- PT — PRESSURE TANK
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- IM — IMPOUNDMENT
- LG — LAGOON
- OF — OUTFALL
- SD — SLUDGE
- ST — STAIN
- SW — SOLID WASTE
- TR — TRENCH
- VS — VEGETATION STRESS
- WD — WASTE DISPOSAL AREA
- WV — WETLAND VEGETATION

Figure 3. Altgeld Gardens, November 14, 1938. Approximate scale 1:19,525.

MARCH 29, 1952 (FIGURE 4)

The northwest quadrant of the Pullman Sewage Farm area continues to be disturbed by construction activity. An exposed pipe is visible in this area. Much of the study area appears to be either turf or undergoing cultivation. Outside the northeast perimeter of the Pullman Sewage Farm area, there are drainage depressions leading toward the Pullman Sewage Farm area from the Altgeld Gardens housing development. The buildings denoted by Annotation A appear unchanged. No evidence of waste disposal is noted.

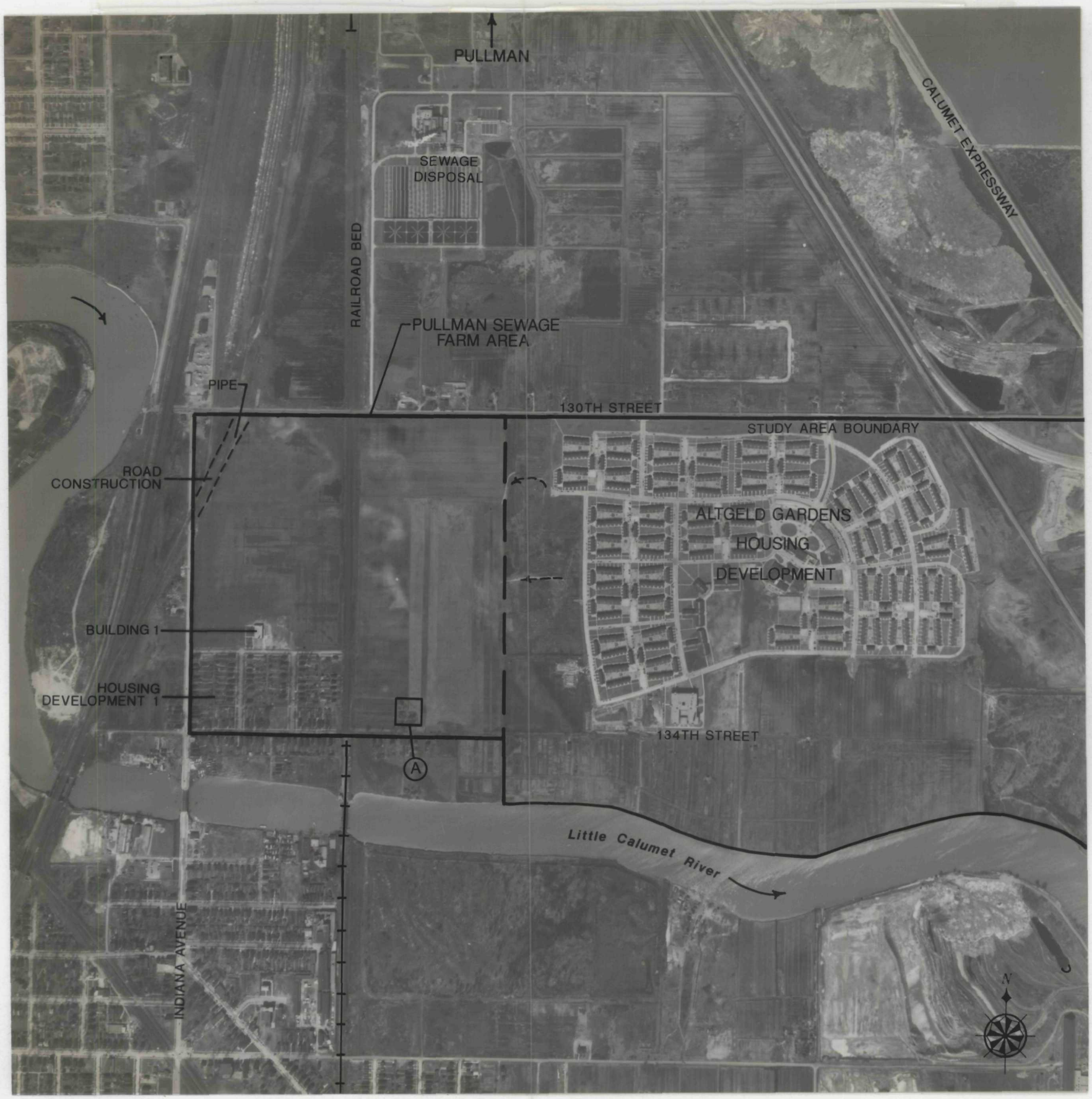

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Figure 4. Altgeld Gardens, March 29, 1952. Approximate scale 1:10,740.

SEPTEMBER 3, 1959 (FIGURE 5)

Golden Gate Park is under construction across 130th Street from the northwest perimeter of the study area. In the northeast corner of the Pullman Sewage Farm area is a rectangular lot with a complex of buildings; the remaining surface of the lot appears to be smooth fill. A school has been built adjacent to this lot. Lawrence Avenue has been constructed along the eastern perimeter of the Pullman Sewage Farm area. The buildings denoted in previous years by Annotation A are no longer visible. No evidence of waste disposal is noted.

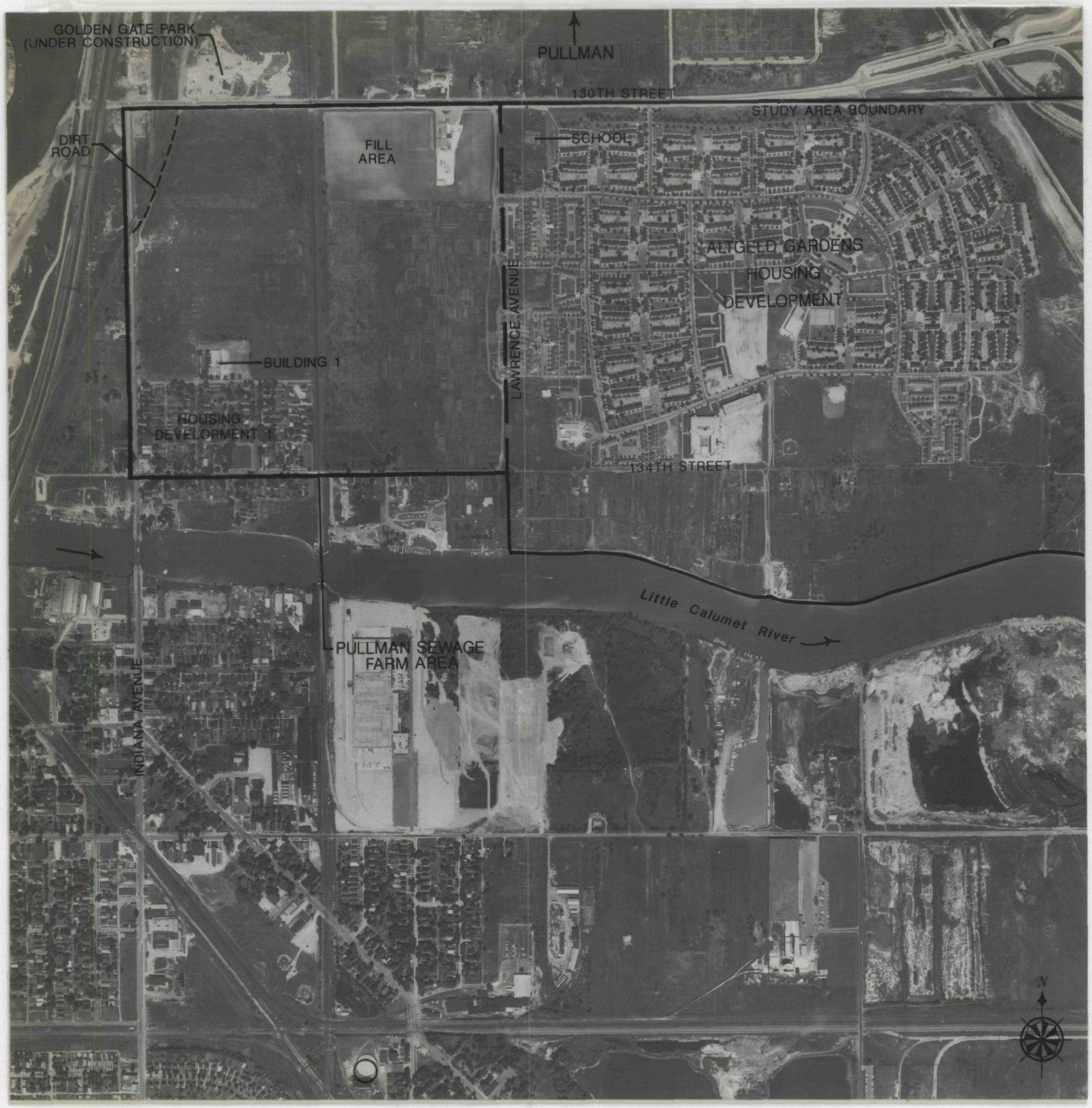

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Figure 5. Altgeld Gardens, September 3, 1959. Approximate scale 1:9,320.

AUGUST 28, 1967 (FIGURE 6)

In the northwest quadrant of the study area there is a pipe trench extending from the road. Annotation B denotes the location of buildings inside the study area which seem to be a part of a nearby train depot. Buildings and a circular storage tank have been built on the location of the fill area previously noted in the northeast quadrant of the Pullman Sewage Farm area. In the southeast quadrant of the Pullman Sewage Farm area a housing development (Housing Development 2) has been built over the location of Annotation A (Figure 3); it is probably an expansion of the Altgeld Gardens housing development. A third housing development (Housing Development 3) is in the initial stages of construction, surrounding Building 1.

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Figure 6. Altgeld Gardens, August 28, 1967. Approximate scale 1:8,470.

APRIL 23, 1973 (FIGURE 7)

Housing Development 3 appears completed and a fourth housing development (Housing Development 4) has also been built in the northwest quadrant of the study area.

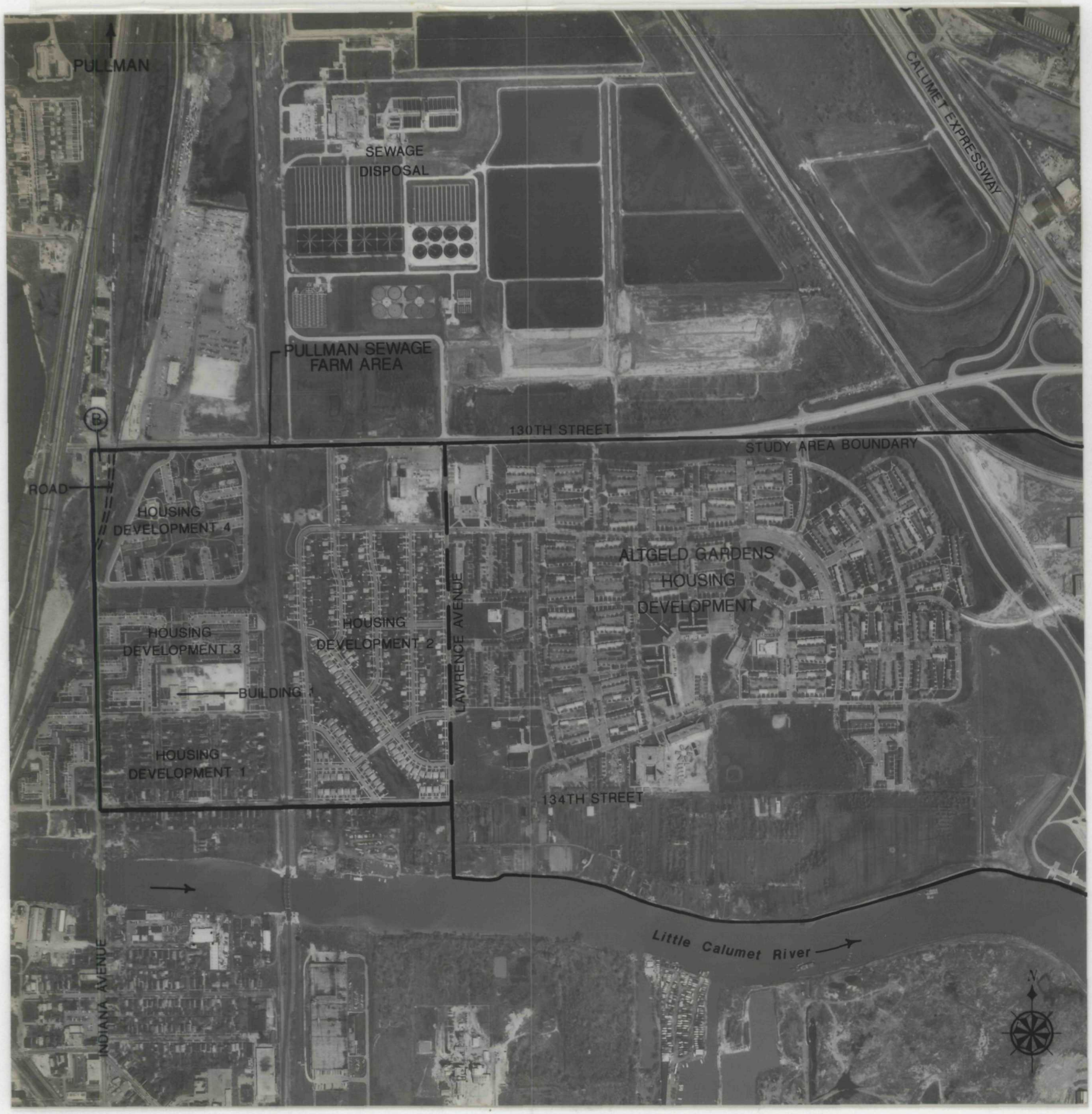

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Figure 7. Altgeld Gardens, April 23, 1973. Approximate scale 1:9,630.